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“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

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“Step Out From the Old to the New”

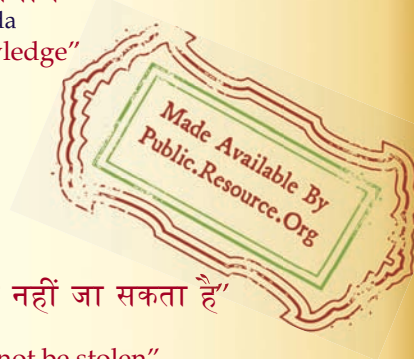
IS 11241 (1985): Portable Liquefied Petroleum Gas Appliances Operating at Vapour Pressure [MED 23: Domestic and Commercial Gas Burning Appliances]



“ज्ञान से एक नये भारत का निर्माण”

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“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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Indian Standard

SPECIFICATION FOR PORTABLE LIQUEFIED PETROLEUM GAS APPLIANCES OPERATING AT VAPOUR PRESSURE

1. Scope — Specifies construction, operation, safety requirements and tests for portable liquefied petroleum gas appliances, such as cooking appliances, lights, space heaters and blow torches intended for operating at the direct vapour pressure of the gas in refillable and non-refillable gas containers. This standard excludes liquid feed burners and equipment having integral containers refillable by user as they may constitute a hazard.

1.1 Since the LPG marketed in the country is a commercial mixture of butane and propane containing predominantly butane, these appliances shall be deemed to be meant for use with such commercial butane-propane mixture and shall satisfy various requirements accordingly.

2. Terminology — For the purpose of this standard, definitions given in IS : 6480-1971 'Glossary of terms relating to domestic and commercial gas burning appliances' shall apply.

3. Construction — In addition to the relevant requirements given in 3 of Section 1 of IS : 5116-1985 'General requirements for domestic and commercial equipment for use with LPG (second revision)' the requirements given in 3.1 shall apply.

3.1 No pressure regulator shall be included as a part of the appliance.

4. Materials — In addition to the relevant requirements given in 4 of Section 1 of IS : 5116-1985, requirements given in 4.1 shall apply.

4.1 The body of the appliance valve shall be of forged brass. [See IS : 3488-1980 Brass bars, rods and sections suitable for forging (*first revision*)].

5. Design for Maintenance — The appliance, including all its component parts, shall be easy to clean and maintain in good working order and condition. There shall be easy access to the accessories and controls for maintenance and adjustment.

5.1 Burners and parts of burners only of the same capacity, model and make shall be interchangeable or replaceable without affecting the performance.

5.2 Parts which are intended to be removable by the user shall be easy to replace correctly and difficult to assemble incorrectly.

5.3 All nuts, bolts and fittings having spanner flats shall be capable of being moved with suitable spanner or be readily accessible to an adjustable spanner.

6. Stability — The appliance, if mounted on a cylinder, shall be so designed that it will not tip over when placed on a plane at an angle of 15° from the horizontal, with the container empty.

6.1 For cooking appliances, the design of the pan support shall be such that the assembly will remain stable when used with vessels of diameters from 100 to 200 mm.

7. Inlet Connection — If the appliance is designed to be fitted directly to the gas container, the connection shall be such that it will fit easily on the gas container and it would be possible to attach and detach it with little or no loss of gas.

7.1 If the appliance is designed to be connected to the gas container with a flexible hose it shall be such that the appliance can only be fitted to the appropriate container for which it is designed.

7.2 Where a spanner is necessary to be used for making the connection, it shall be provided with the appliance.

7.3 All hose connections shall be integral with the appliance and with the container. Hose clips are not permitted. The hose shall either be provided with screwed ends with a nut, operatable by spanner, at the appliance end, or shall be provided with an adequate device which may be tightened by hand to give a gas tight connection e.g. a wing nut and washer connection.

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8. Finish — The relevant requirements of 6 of Section 1 of IS : 5116-1985 shall apply.

9. Valves — The valves shall not be of taper plug type. Valves shall be so designed that it is impossible to withdraw completely the valve stem in the normal operation of the valve. It shall be impossible for any valve to be opened inadvertently.

9.1 Any lubricant if used on the valve shall contain 50 percent by weight of molybdenum disulphide and shall have a drop point as determined by IS : 1448 (Part 52)-1971 'Methods of test for petroleum and its products: Part 52 Drop point (*first revision*)' in excess of maximum working temperature of the valve. The lubricant shall be non-corrosive to mild steel, brass, copper and other metals of which the valve is constructed and shall have reasonable resistance to the solvent action of LPG.

9.2 The valves shall be so situated that they can be operated without the hand being likely to touch hot parts of the appliance.

10. Washers, O-Seals and Jointing Compounds — All washers, 'O' seals and jointing compounds (see IS : 3465-1966 'Jointing compounds for use in liquefied petroleum gas appliances and installations') coming into contact with the gas shall be suitable for use with liquefied petroleum gas.

11. Injector Jets — It shall not be possible to loosen injector jets without the use of tools; for this purpose spanner flats shall be provided.

11.1 It shall not be possible to fit the injector jets normally used in LPG appliances intended for use with liquefied petroleum gases at 30 gf/cm² gas inlet pressure.

12. Guards — Space heaters having exposed flames or radiants shall be provided with suitable guards.

13. Primary Air Regulators — If primary air regulators are used, they shall be so designed that they are not easily maladjusted by the user and the construction shall be such that primary air adjustment can be made with the burner in place.

14. Flexible Tubing — The flexible tubing, if used with the appliance, shall be of an appropriate length and the connection shall be such that the appliance can only be fitted to a remmended container, (Please see 7.1 and 7.3).

15. Gas Containers — Gas containers shall be of adequate size for the efficient operation of the appliance for which they are designed.

15.1 Non-refillable (expendable) gas containers used with these appliance shall comply with the requirements of IS : 4093-1981 'Specification for non-refillable liquefied patroleum gas containers (*first revision*)'.

15.2 Refillable gas containers used with these appliances shall comply with IS : 7142-1974 'Specification for welded low carbon steel gas cylinders for low pressure liquefiable gases, not exceeding 5 litres water capacity'.

15.3 If it is intended that the container or the closure shall be pierced to use its contents, the container shall be so designed in conjunction with the appliance with which it is to be used that it is not reasonably possible to operate the piercing device to pierce the container unless the container is properly attached to the appliance.

16. Gas Soundness — The whole of gas ways including the valves, which are held under working pressure, shall be gas tight when tested under water with air at a pressure of 0.35 kg/cm² and 17 kg/cm². For all these tests, a pressure regulator shall be used.

17. Performance

17.1 Test Gases — For the purpose of tests gases, description and procedure shown in 18.4 of Section 2 of IS : 5116-1985 shall apply.

17.2 General Conditions of Test — Conditions laid down in 18 of Section 2 of IS : 5116-1985 shall apply.

17.2.1 Since the appliances are to be used with commercial mixture of butane and propane (as stated in 1.1), tests shall be carried out with test gas A at a pressure of 0.35 kg/cm².

18. Ignition and Flame Travel — There shall be easy and safe access for lighting by a match. It shall be easy to see when gas is ignited.

18.1 With valves fully open, flame travel shall be complete at the specified supply pressure when a flame is applied to the burner port.

**AMENDMENT NO. 2 FEBRUARY 2005
TO
IS 11241 : 1985 SPECIFICATION FOR
PORTABLE LIQUEFIED PETROLEUM GAS
APPLIANCES OPERATING AT VAPOUR PRESSURE**

[Page 2, clause 15.2 (see also Amendment No. 1)] — Substitute the following for the existing:

“15.2 Refillable gas containers used with these appliances shall comply with IS 7142 : 1985 Welded low carbon steel cylinders for liquefiable petroleum gases (LPG) not exceeding 5 litres water capacity — Specification’ or IS 12586 : 1998 ‘Braze low carbon steel gas cylinders not exceeding 13 litres water capacity — Specification’ or IS 3196 (Part 1) : 1992 ‘Welded low carbon steel cylinders exceeding 5 litre water capacity for low pressure liquefiable gases : Part 1 Cylinders for liquefied petroleum gases (LPG) — Specification (*fourth revision*).”

AMENDMENT NO. 1 FEBRUARY 1993
TO
IS 11241 : 1985 SPECIFICATION FOR PORTABLE
LIQUEFIED PETROLEUM GAS APPLIANCES
OPERATING AT VAPOUR PRESSURE

(*Page 2, clause 15.2*) — Substitute the following for the existing clause:

“15.2 Refillable gas containers used with these appliances shall comply with IS 7142 : 1974 ‘Specification for welded low carbon steel gas cylinders for low pressure liquefiable gases, not exceeding 5 litre water capacity’ or IS 12586 : 1988 ‘Brazed low carbon steel gas cylinders not exceeding 13 litre water capacity’.”

(HMD 23)

Reprography Unit, BIS, New Delhi, India

19. Flame Stability — It shall be possible to operate stoves with control valves fully open at gas inlet pressure from 30 to 200 kN/m² (294 to 1960 gf/cm²) without the flame either extinguishing, blowing off or striking back and without the formation of soot.

20. Resistance to Draughts — There shall be no lighting back or extinction of the flame when the appliance is operated under the conditions specified in 17.2.1 and when placed in a normal (not localized) current of air with a velocity of 2 m/s as measured with a rotating vane anemometer. The location of the appliance relative to neighbouring walls and the direction of draught shall be varied to correspond to the likely conditions of appliance installation. This test shall be conducted with the wind shield fitted if supplied with appliance.

21. Combustion — Under the conditions specified in 17.2.1, the carbon monoxide/carbon dioxide ratio of exhaust gases of the appliances shall not exceed 0.02 when determined in accordance with Appendix C of IS : 4246-1984 'Specification for domestic gas stoves for use with liquefied petroleum gases (*third revision*)'.

22. Surface Temperatures — When the appliance is operated under the conditions specified in 17.2.1, the surface temperature shall be measured by means of a surface pyrometer or thermocouple soldered to the surface. At no time after ignition shall the surface temperature exceed the figures given hereunder :

Surfaces (other than working surface) likely to be touched accidentally	120°C
Surfaces of appliances intended to be touched	
Metallic	50°C
Non-metallic	65°C
Surfaces of gas container and container valve	32°C

Note — For appliances used with containers filled to a tropical filling ratio, the permissible temperature of the surface of the gas container and container valve may be raised to a figure not exceeding 50°C.

23. Maximum Heat Output for Portable Space Heaters — The maximum heat output for portable space heaters shall be 6.5 MJ/h (1.8 kW).

24. Classification of Tests

24.1 The following shall constitute routine tests:

- Gas soundness (*see 16*),
- Ignition and flame travel (*see 18*), and
- Flame stability (*see 19*).

24.2 The following tests shall constitute type tests:

- Resistance to draughts (*see 20*),
- Combustion (*see 21*),
- Surface temperatures (*see 22*), and
- Maximum heat output for portable space heaters (*see 23*).

25. Instructions — The appliance shall be accompanied by an instructions card giving the following information:

- Precise instruction for assembly, maintenance and safe use of the appliance;
- Instructions for fitting or changing the containers;
- Instructions to replace perishable parts; and
- Country of origin.

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26. Marking — Each appliance shall be legibly and indelibly marked with the following:

- a) Manufacturer's name, initials or registered trade-mark;
- b) Type of gas;
- c) Country of origin; and
- d) Any special instruction for safe use of appliance.

26.1 ISI Certification Marking — Details available with the Indian Standards Institution.

27. Packing — The container shall be packed as agreed to between the purchaser and the supplier taking into consideration the safety requirements during handling and transit to protect against damage.

EXPLANATORY NOTE

While preparing this standard assistance has been derived from BS 3879-1981 Specification for portable appliances operating at vapour pressure from liquefied petroleum gas containers issued by British Standards Institution.